Politecnico di Torino

Digital systems electronics
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Lab 09

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Output compare VS Reload

In the following report the Output Compare register and/or auto-reload register can be calculated from the desired asserted flag frequency using the following formula:

$$F_X = \frac{F_{CLK}}{(OC+1)\cdot(ARR+1)} \qquad (1)$$

Notice that to correctly generate a square wave with a desired frequency F_X exploiting the OC or ARR approach, the formula 1 should also be divided by a 2 factor.

1 - Interrupt-based variable frequency square waveform generator

In the following section a variable frequency square wave has been implemented exploiting the interrupt approach.

$$delta1 = (OCmax1 - OCmin1) * lettura/ADCmax + OCmin1;$$

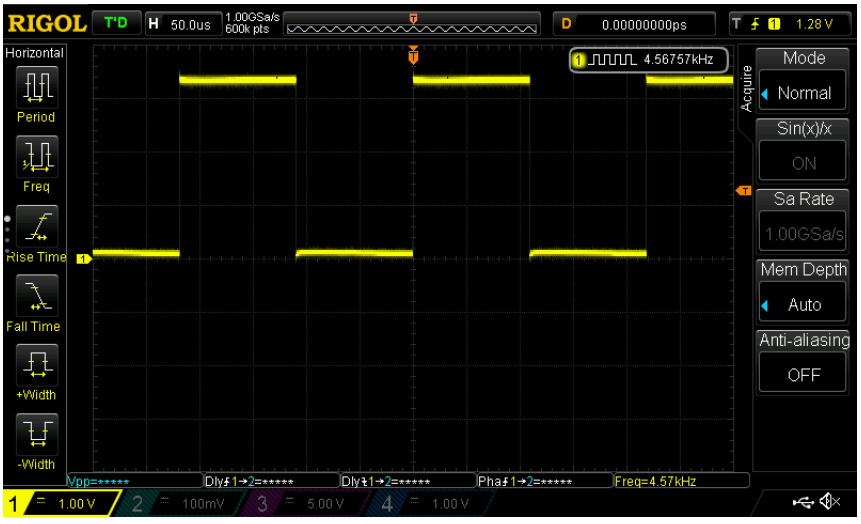

Figure 1:

sono molto più stabili no jitter sensa systick, piccolo jitter con systik

2.1

image 12 -13 -11

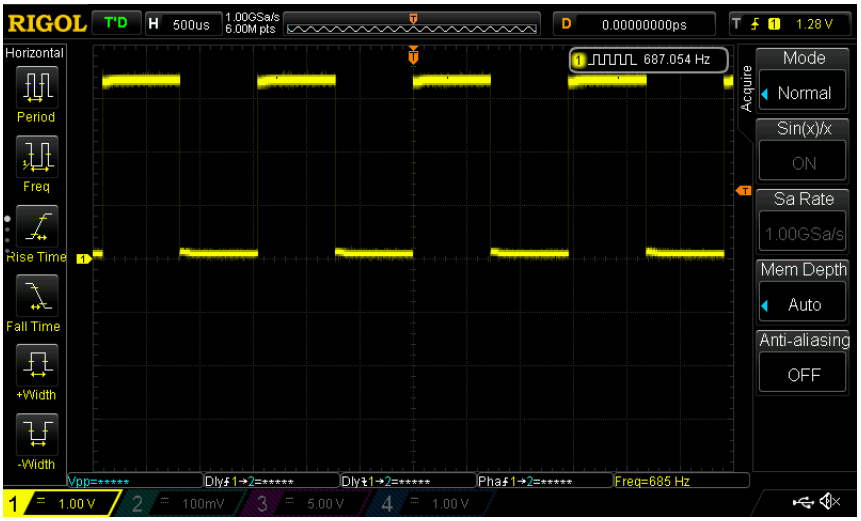

Figure 2:

2.2

il jitter non è apprezzabile perche l'isr è corta???

2.3

image 14 min image 15 max